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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN BA, HOANG VU A	

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/016,794	HEEB, BEAT	
	Examiner	Art Unit	
	Hoang-Vu A Nguyen-Ba	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *05/1004 & 4/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the application filed October 29, 2001.

2. The priority date considered for this application is December 13, 2000.

3. Claims 1-29 have been examined.

Drawings

4. The drawings are objected to because of the following minor informalities:

a. Figures 1A, 1B and 2 should be designated by a legend such as – Prior Art – because only that which is old is illustrated. See MPEP § 608.02(g);

b. Figures 1A and 1B:

i. an arrowhead is missing at the bottom end of the connecting line between blocks 102, 152 and 104, 154, respectively; and

ii. it is not clear why there is a connecting line between the output of block 104, 154 and the input of block 102, 152 respectively;

c. Figure 2: arrowhead is missing at the input of blocks 204, 206, 208, 210 and at the intersection of the output of the "Not at the beginning of a basic bloc" terminal of block 204 and the connecting line between blocks 206 and 208;

d. Figure 3:

i. "YES" and "NO" legends are missing at the outputs of decision blocks 310, 320, 322, 324;

ii. the left margin of Figure 3 is not acceptable; and

iii. Step 316: the phrase "see B" should be changed to – see A and B –;

e. Figure 4A:

i. "YES" and "NO" legends are missing at the outputs of decision blocks 402, 408, 414, 418, 422; and

ii. block 406: the term "handled" should be – "handled" – (i.e., between quotation marks);

f. Figure 4B:

i. "YES" and "NO" legends are missing at the outputs of decision blocks 428, 430, 436, 438, 440 and 444; and

ii. block 428: it is unclear what is the question posed in this decision block; is the question construed to be "Is following instruction a successor?"

Correction is required.

Specification

5. The disclosure is objected to because of the following minor informality: the term "servelet" in page 1, line 29 is mistyped.

Claim Objections

6. Claims 10, 12, 13, 16, 17, 19, 25, and 26 are objected to because of the following informality: the following terms should be put between quotation marks to signify that they are statuses of the entity under consideration:

Claim 10: "empty" in line 2;

Claim 12: "setup" in line 3;

Claim 13: "none" in line 2;

Claim 16: "setup" in line 2;

Claim 17: "setup" in lines 2, 3, 4;

Claim 19: "handled" in line 2;

Claim 25: "none" in line 5; "setup" in line 7;

Claim 26: "none" in line 5; "setup" in line 7.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 2 and 8-29 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Lack of antecedent basis:

Claim 2 recites the limitation "said computer program" at line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 8-29 recite the limitation "said compilation procedure" at line 1. There is insufficient antecedent basis for this limitation in the claims.

Claim 10 recites the limitation "the first bytecode instruction" at line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said first bytecode instruction" at line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the stack map" at line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the exception handler entry in bytecode" at line 5. There is insufficient antecedent basis for this limitation in the claim.

Claims 21 and 22 recite the limitation "the stack" at line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 recites the limitation "said class" in line 2. There is insufficient antecedent basis for this limitation in the claim.

b. Vague and unclear:

Claim 18: the limitation "verify compatibility between actual local variable types and stack map for the exception handler entry in the bytecode" is vague and unclear because it is not understood what entities are being compared, e.g., variable types, bytecode instruction or exception handler entry.

Claim 21: the limitation "verify compatibility between the stack status and types and the values expected by said actual instructions" is vague and unclear because it is not understood which items are being compared, e.g., stack status with status expected by said instructions and variable types in the stack with those of expected by the actual instructions?

Claim 23: the limitation "verify compatibility between actual local variable types and said actual instruction" is vague and unclear because it is not understood how variable types can be compared with an instruction since they are two different entities.

Claim 25:

i. the limitation "verify compatibility between new stack status and stack map for said successor instruction in the bytecode" is found to be vague and confusing because it is not understood whether the status of the new stack is being compared to that in the stack map?

ii. the limitation "verify compatibility between actual stack and local variable types and stack map for said successor instruction in the bytecode" is found to be confusing because it is unclear which entity is being compared to which entity and whether these entities are of the same type or not (e.g., comparing "apple to apple" and "orange to orange")?

Claim 26: the verifying step is vague and confusing for the same reasons discussed above in conjunction with the rejection of claim 25.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Long*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1993); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F2.d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F2.d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminated disclaimer in compliance with 37 CFR 1.103(c) 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-29 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/014,742. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant

application are claiming common subject matter or obvious variation thereof, as shown in the following table(s).

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schnelle*, 397 F2.d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Instant Claim 1	Copending Claim 1
A computer apparatus suitable for use in the **combined compilation and verification** of platform neutral bytecode instructions resulting in optimized machine code, comprising:	A computer apparatus suitable for use in the **fast compilation of preverified** platform neutral bytecode instructions resulting in high quality native machine code, comprising:
a central processing unit (CPU);	a central processing unit (CPU);
a computer memory coupled to said CPU, said computer memory comprised of a computer readable medium;	a computer memory coupled to said CPU, said computer memory comprised of a computer readable medium;
a **compilation-verification** program embodied on said computer readable medium, said **compilation-verification** program comprising:	a **compilation** program embodied on said computer readable medium, said **compilation** program comprising:
a first code segment that receives a **bytecode** listing;	a first code segment that receives a **class file** listing;
a second code segment that **verifies said bytecode listing is free of malicious and improper code and compiles said bytecode** listing into machine code; and	a second code segment that **compiles said class file** listing into machine code; and
a third code segment that interprets and executes said machine code.	a third code segment that interprets and executes said machine code.

Instant claim 7	Copending claim 3
A computer implemented method for **facilitating combined compilation and verification** of platform neutral bytecode instructions resulting in **optimized** machine code, comprising the steps of:	A computer implemented method for **compilation of preverified** platform neutral bytecode instructions resulting in **high quality** native machine code, comprising the steps of:
receiving a class file onto a computer readable medium containing compilation procedure instructions, said class file containing one or more methods containing platform neutral bytecode listings;	receiving a class file onto a computer readable medium containing compilation procedure instructions, said class file containing one or more methods containing platform neutral bytecode listings;
executing said compilation procedure instructions on said bytecode listings, said compilation procedure instructions **also simultaneously verifying** said bytecode listings; and	executing said compilation procedure instructions on said bytecode listings, said compilation procedure instructions **sequentially processing each byte code instruction** of said bytecode listing;
	using information from preceding instructions to mimic an optimizing compiler; and
producing **verified optimized** machine code on said computer readable medium.	producing native machine code on said computer readable medium.

As can be seen from the above tables, all the claims of the instant application are anticipated by those of the copending application. The invention of the instant application, i.e., **method for facilitating combined compilation and verification of platform neutral bytecode instructions**, is not patentably distinct from that of the copending invention since the invention of the copending application is also related to a method for compilation of platform neutral byteceode instructions. The only difference is that the method of the copending application compiles bytecodes that have been previously verified. The verification step of the bytecodes has been

inherently performed by the method of the instant application to ensure that the bytecodes are free of malicious or improper code.

Claim Rejections - 35 U.S.C. § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

12. Claims 1, 3-5, 7-9 are rejected under 35 U.S.C. § 102(a) as being unpatentable over the admitted prior art (APA) of Figures 1A, 1B, 2 and of pages 1-5 and 8-9 of applicant's background.

Claim 1

APA discloses at least:

a compilation-verification program embodied on said computer readable medium, said compilation-verification program comprising:

a first code segment that receives a bytecode listing (see at least Figure 1A, step 102; Figure 1B, step 152; Figure 2, step 202; and associated text);

a second code segment that verifies said bytecode listing is free of malicious and improper code and compiles said bytecode listing into machine code (see at least Figure 2, step 208 and associated text; section 0009-0012); *and*

a third code segment that interprets and executes said machine code (see at least Figure 1B, step 154 and associated text; p. 2, line 21-22; p.3, lines 11-13).

The APA of applicant's background does not specifically disclose:

a central processing unit (CPU);

a computer memory coupled to said CPU, said computer memory comprised of a computer readable medium.

However, this hardware support is deemed to be inherent to the APA teaching of a compilation procedure. Without a CPU which executes the instructions of a computer program (e.g., compiler and JAVA™ virtual machine) that is stored on a computer readable medium and loaded onto a random access memory of a computer system, the compilation procedure would be inoperative and would produce no useful, concrete and tangible results.

Claim 3

Since Claim 3 recites a computer apparatus having similar features of Claim 1, the same rejection is thus applied. Claim 3 further recites *an optimized machine code simultaneously resulting from said first and second subset instructions*. Optimized machine code, an inherent result of the compilation process recited in claim 1, is also admitted prior art at p. 4, lines 22-29.

Claim 7

Claim 7 recites a computer implemented method for facilitating combined compilation and verification of platform neutral bytecode instructions resulting in optimized machine code comprising the same steps of claims 3 and 1. Therefore, the same rejections are applied.

Claim 4

The rejection of base claim 3 is incorporated. The APA further discloses *wherein said first plurality of subset instructions evaluates said bytecode instructions to detect improper data types and improper stack usage* (see at least sections 0009-0012).

Claim 5

The rejection of base claim 3 is incorporated. The APA further discloses *wherein said second plurality of subset instructions evaluates said bytecode instructions for complete compilation of said bytecode instructions into said optimized machine code* (see at least Figure 1B, step 154 and associated text; p. 2, line 21-22; p.3, lines 11-13).

Claim 8

The rejection of base claim 7 is incorporated. The APA further discloses *wherein said compilation procedure creates storage for each bytecode instruction to store stack status and marks* (see at least Figure 1A, step 104; Figure 1B, step 154; Figure 2, step 206; and associated text).

Claim 9

The rejection of base claim 7 is incorporated. The APA further discloses *wherein said compilation procedure creates storage for each bytecode instruction to store stack status and marks* (see at least Figure 1A, step 104; Figure 1B, step 154; Figure 2, step 206; and associated text).

Allowable Subject Matter

13. Claims 2 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims. The APA fails to teach *said computer program simultaneously verifies and compiles said bytecode listing into optimized machine code*. Rather, as being well known in the art, the process of verifying JAVA™ bytecode always precedes that of just-in-time compiling the bytecode into machine code or that of interpreting the bytecode into machine code.

14. Claims 10-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Note that these dependent claims taken individually and without incorporation of the limitations of the base claim and any intervening claims are not allowable. Rather, they are only deemed allowable when taken in combination with all the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Vu "Antony" Nguyen-Ba whose telephone number is (703) 305-0103. The examiner can normally be reached on Tuesday-Friday, 6:00 to 16:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANTONY NGUYEN-BA
PRIMARY EXAMINER

Art Unit 2122

August 31, 2004